UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
BIN C15700
Seattle, WA 98115-0070

Refer to:
OHB2002-0035-FEC

April 9, 2002

Mr. Fred P. Patron
Senior Transportation Planning Engineer
Federal Highway Administration, Oregon Division
530 Center Street NE
Salem, OR 97301

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation for the Medford Viaduct Project on Bear Creek, Jackson County, Oregon

Dear Mr. Patron:

Enclosed is the biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of the proposed Medford Viaduct Project on Bear Creek, Jackson County, Oregon. In this Opinion, NMFS concluded that the proposed action is not likely to jeopardize the continued existence of ESA-listed Southern Oregon/Northern California coast coho salmon, or destroy or adversely modify designated critical habitat. As required by section 7 of the ESA, NMFS included reasonable and prudent measures with nondiscretionary terms and conditions that NMFS believes are necessary to minimize the potential for incidental take associated with this action.

This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and its implementing regulations (50 CFR part 600).

If you have any questions regarding this consultation, please contact Art Martin (503.231.6848) or Frank Bird (541.957.3383) of my staff in the Oregon Habitat Branch.

Sincerely,

for Michael R Course

D. Robert Lohn
Regional Administrator

cc: Rose Owens, ODOT
Greg Robart, ODFW
Diana Hwang, USFWS

Endangered Species Act - Section 7 Consultation
&
Magnuson-Stevens Act
Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Medford Viaduct Project on Bear Creek,
Jackson County, Oregon

Agency: Federal Highway Administration

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: April 9, 2002

Issued by: for Michael R Crouse
D. Robert Lohn
Regional Administrator

Refer to: OHB-2002-0035-FEC

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1. ENDANGERED SPECIES ACT

1.1 Background

On February 7, 2002, the National Marine Fisheries Service (NMFS) received a biological assessment (BA) and a request from the Federal Highway Administration (FHWA) for Endangered Species Act (ESA) section 7 formal consultation for the Medford Viaduct Project on Bear Creek. The project will include work to rehabilitate the bridge deck, improve the bridge railings, retrofit the structure with seismic protection, upgrade scour protection, and enhance riparian vegetation at the Medford Viaduct. The Medford Viaduct is a 0.96-kilometer stretch of Interstate Highway 5 (I-5) within the City of Medford (City) in Jackson County, Oregon. The project applicant is Oregon Department of Transportation (ODOT). This biological opinion (Opinion) is based on the information presented in the BA and discussions with the applicant.

The FHWA has determined that Southern Oregon/Northern California (SONC) coho salmon (*Oncorhynchus kisutch*) may occur within the project area. The SONC coho salmon were listed as threatened under the ESA on May 6, 1997 (62 FR 24588), critical habitat was designated on May 5,1999 (64 FR 24049), and interim protective regulations were issued under section 4(d) of the ESA on July 18, 1997 (62 FR 38479). Critical habitat is designated to include all river reaches accessible to listed coho salmon between Cape Blanco, Oregon and Punta Gorda, California. Excluded are areas above specific dams or above longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for at least several hundred years). The FHWA, using methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), determined that the proposed action is likely to adversely affect SONC coho salmon.

This Opinion is based on the information presented in the BA and developed through correspondence to obtain additional information and clarity. The objective of this Opinion is to determine whether the action to rehabilitate the existing structure is likely to jeopardize the continued existence of the SONC coho salmon, or destroy or adversely modify critical habitat. This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

1.2 Proposed Action

1.2.1 Project Purpose

This project is designed to rehabilitate the Medford Viaduct over Bear Creek and upgrade both seismic and scour protection features of the structure. The existing structure is in need of a structural overlay as a result of 30 years of automobile and heavy truck wear on the existing deck and the thin nature of the original deck construction. Type I seismic protection features will be added to the entire deck at each bent. Scour protection features will be upgraded to protect the integrity of various bents along the structure.

1.2.2 Deck Work

The existing deck will be hydromilled to remove the appropriate amount of existing surface. Hydromilling will generate approximately 10,000 gallons of sediment laden water during each 10-hour work shift. A structural overlay will then be paved over the hydromilled deck. Deficient bridge rail curbs will be sawcut and removed from the structure and replacement concrete barriers will be poured in place along the bridge rail. This work will take at least 45 days to complete during which time sediment laden water or water contaminated by contact with green concrete will need to be contained and treated prior to contact with flowing water in Bear Creek.

1.2.3 Bent Work

Phase I Seismic Retrofits. Phase I seismic retrofits will be completed at all bents along the length of the viaduct. Access to the bents will be from below the deck and from temporary work platforms suspended from the structure. These temporary work platforms will be built at each bent to contain construction debris and facilitate installation of each seismic retrofit. Access to the work platforms will be from hydraulic lifts staged below the structure above the ordinary high water mark (OHWM) elevation, also known as bankfull elevation[1]. The seismic retrofits will require boring drill holes into the existing concrete work to anchor concrete counterweight mechanisms at each bent. Any necessary work associated with the seismic retrofits from below the OHWM will occur only within the Oregon Department of Fish and Wildlife (ODFW) preferred in-water work period[2] of June 15 - September 15.

Scour Protection Activities. Scour protection will occur at nine footings along Bear Creek. Bents 16R and 17R will be protected with class 350 riprap. One half of bent 16R and one quarter of bent 17R have existing scour protection. Excavation of 21 cubic meters and 29 cubic meters of embankment fill and replacement with class 350 riprap will occur at bent 16R and 17R, respectively. Excavation and fill activities will occur below the OHWM at bents 16R and 17R to upgrade the scour protection for these bents. Access to install the scour protection measures will be from below the OHWM and work area isolation may be necessary to isolate construction equipment, fill, and removal activities from the flowing water of Bear Creek.

Bents 35R through 39R, 39L, and 40L will be protected with sheet piles and a thin reinforced concrete slab to tie the sheet piles and bent footing together. Sheet piles will be driven around the perimeter of the footings and the concrete slab will be poured around the bent footing at the

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[1] "Bankfull elevation" means the bank height inundated by a 2-year average recurrence interval and may be estimated by morphological features such as average bank height, scour lines and vegetation limits.

[2] Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 4pp(June 200) (Identifying work periods with the least impact on fish) (http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf).

top of the sheet piles. A total excavation of 700 cubic meters of embankment fill will occur at the seven bents to facilitate the driving of sheet piles with most of the excavated materials used to backfill the sheet pile structures. The finished sheet pile and concrete slab scour protection measure will occupy a footprint of 5 meters-by-5 meters at each bent. All work performed on bents 35R through 39R, 39L, and 40L may require access from below the OHWM, installation of temporary work platforms, and installation of a temporary rail car bridge across Bear Creek to allow access to, and work on, bent 40L by the sheet pile driving equipment. Work area isolation will be necessary to isolate construction equipment and scour protection activities from the flowing water of Bear Creek.

All activities below the OHWM will occur during the ODFW preferred in-water work time of June 15 - September 15 except scour protection activities at bents 16R and 17R, which will occur during the ODFW approved in-water work time extension of October 1 - October 31. This ODFW approved in-water work timing extension was granted to facilitate scour protection activities to occur in the dry after the Rouge Valley Irrigation District lowers Bear Creek's water level at the irrigation dam downstream of bents 16R and 17R. Any additional exceptions to this timing will be granted only after consultation with a NMFS biologist. If water levels at any bent require work area isolation, any fish trapped in the isolation area will be removed by an approved biologist before dewatering.

1.2.4 Riparian Vegetation Enhancement

The FHWA is proposing as part of the action to revegetate approximately 420 square meters of riparian area along Bear Creek between bents 35R and 38R. The riparian plantings will be a mixture of 500 #1 potted native shrubs and a seed mix of native shrubs and grasses. The primary goal of the plantings will be to provide long-term erosion and sediment control but will also provide other functions such as stream bank stabilization, shading, and increased potential for insect production.

1.3 Biological Information and Critical Habitat

Within the Bear Creek watershed, NMFS listed the SONC coho salmon as threatened under the ESA on May 6, 1997 (62 FR 24588), critical habitat was designated on May 5,1999 (64 FR 24049), and interim protective regulations were issued under section 4(d) of the ESA on July 18, 1997 (62 FR 38479). Critical habitat includes all streams accessible to listed coho salmon between Cape Blanco, Oregon and Punta Gorda, California. The designation includes all waterways, substrates, and adjacent riparian zones below longstanding, naturally-impassable barriers. The adjacent riparian zone is defined based on key riparian functions. These functions are shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter.

Coho salmon are known to spawn and rear in the Bear Creek watershed. Adult coho salmon enter Bear Creek in early November and spawn through January, with all spawning activity occurring upstream from the project site. Coho salmon are distributed throughout most of the

mainstem of Bear Creek, past the city of Ashland and in some larger tributaries. Juvenile coho salmon may occur in the project area during the early part of the in-water work period, the end of the spring out-migration period.

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the: (1) Definition of the biological requirements and current status of the listed species, and (2) evaluation of the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential biological elements necessary for juvenile and adult migration, and juvenile rearing of SONC coho salmon.

1.4.1 Biological Requirements

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed coho salmon is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list SONC coho

salmon for ESA protection and also considers new available data that is relevant to the determination.

The relevant biological requirements are those necessary for SONC coho salmon to survive and recover to naturally-reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environmental.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration and juvenile rearing in the action area. The current status of the SONC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed. The Bear Creek watershed serves as freshwater riverine spawning habitat and year-round juvenile rearing habitat. However, inadequate spawning substrate makes the action area an unlikely spawning habitat. Lack of complex cover, deep pools, and undercut banks combined with high summer water temperatures may limit successful juvenile salmonid rearing in the action area.

1.4.2 Environmental Baseline

The current range-wide status of the identified ESU may be found in Nickelson et al. (1992) and Weitkamp et. al (1995). The identified action will occur within the range of SONC coho salmon. The action area is the area that is directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activity includes the immediate watershed where the Medford Viaduct project will occur, and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is the channel and adjacent riparian area from about 500 feet upstream from the project site and downstream a mile below the project site. Temporary indirect impacts (disruption of primary productivity and food resources) and potential direct affects (sediment, pollutant discharge and hydraulics) to Bear Creek will be caused by the in-water work and general riparian and bank disturbance within the project area.

The dominant land use in the Bear Creek watershed is private agriculture, although other uses, such as urban development, also occur. Bear Creek is water-deficient, primarily due to the seasonal pattern of rainfall and the demand for water for urban and irrigation use. There are six reservoirs in use in the Bear Creek basin. Further, scattered temporary push-up dams are constructed during the irrigation season. Various water quality monitoring within Bear Creek by Oregon's Department of Environmental Quality shows degraded water quality regarding temperatures, biological oxygen demand, dissolved oxygen, ammonia, sediment and pH levels.

Based on the best available information regarding the current status of SONC coho salmon range-wide, the population status, trends, genetics, and the poor environmental baseline conditions within the action area, NMFS concludes that the biological requirements of SONC coho salmon are not currently being met. Degraded habitat, resulting from agricultural practices, forestry practices, road building, and residential construction, indicate many aquatic habitat indicators are not properly functioning within Bear Creek. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of SONC coho salmon.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Actions

Impacts to waterways from installation of hardened embankments are simplification of stream channels, alteration of hydraulic processes, and prevention of natural channel adjustments (Spence *et al*. 1996). Moreover, embankment hardening may shift the erosion point either upstream or downstream of the project site and contribute to stream velocity acceleration. As amplified erosive forces attack different locations and landowners respond with more bank hardening, the river eventually attains a continuous fixed alignment lacking habitat complexity (USACE 1977).

Fish habitats are enhanced by the diversity of habitats at the land-water interface and adjacent bank (USACE 1977). Streamside vegetation provides shade that reduces water temperature. Overhanging branches provide cover from predators. Insects and other invertebrates that fall from overhanging branches may be preyed upon by fish, or provide food sources for other prey organisms. Immersed vegetation, logs, and root wads provide points of attachment for aquatic prey organisms, shelter from swift currents during high flow events, retain bed load materials, and reduce flow velocity.

The most desirable method of bank protection is revegetation. However, revegetation alone can seldom stabilize banks steeper than 3:1 (horizontal:vertical) or areas of high velocity (USACE 1977). Although they are biologically less desirable, fixed structures provide the most reliable means of bank stability. The use of structural measures should be a last resort. Combining structural measures such as sloped riprap, vegetation, and large woody material (LWM) is preferable to a structural solution without vegetation (USACE 1977).

Sedimentation. Potential impacts to listed salmonids from the proposed action include both direct and indirect effects. Potential direct effects include mortality from exposure to suspended sediments (turbidity) and contaminants resulting from ground disturbance and general construction activities. Potential indirect effects include behavioral changes resulting from elevated turbidity level (Sigler *et al.* 1984, Berg and Northcote 1985, Whitman et al. 1982, Gregory 1988), during river bank habitat alterations.

Suspended sediment and turbidity influences on fish reported in the literature range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorous fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish are the frequency and the duration of the exposure, not just the TSS concentration.

Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Birtwell *et al.* 1984, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbid plumes (McLeay *et al.* 1984, 1987, Sigler *et al.* 1984, Lloyd 1987, Scannell 1988, Servizi and Martens 1991). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). In addition, a potentially positive reported effect is providing refuge and cover from predation (Gregory and Levings 1998).

Fish that remain in turbid, or elevated TSS, waters experience a reduction in predation from piscivorous fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade off (e.g., enhanced survival) to the cost of potential physical effects (e.g., reduced growth). Turbidity levels of about 23 Nephalometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and importance of physical or behavioral effects (Newcombe and MacDonald 1991). Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids may be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjornn and Reiser 1991). However, research shows that chronic exposure can cause physiological stress responses that can increase maintenance energy and reduce feeding and growth (Redding et al. 1987, Lloyd 1987, Servizi and Martens 1991).

Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence *et al.* 1996). Newly emerged salmonid fry may be vulnerable to even moderate amounts of turbidity (Bjornn and Reiser 1991). Other behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to pulses of suspended sediment (Berg and Northcote 1985). Fine redeposited sediments also have the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996), and to reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjornn and Reiser 1991). Because the potential for turbidity should be localized and brief, the probability of direct mortality is negligible.

Chemical Contamination. As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. Operation of the back-hoes, excavators, and other equipment

requires the use of fuel, lubricants, etc., which, if spilled into the channel of a water body or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain poly-cyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause chronic lethal and acute and chronic sublethal effects to aquatic organisms (Neff 1985). Similarly, exposure to herbicides can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and target and non target riparian vegetation (Spence *et al.* 1996). Exposure to water contaminated with runoff contacting green concrete and the associated changes in water chemistry also can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and target and non target riparian vegetation.

Construction-related effects necessary to complete the proposed action will be minimized by completing the in-water work during low flow periods. No construction or construction equipment will enter the flowing water as a result of the proposed action.

Stream Hydraulics. The placement of 50 cubic meters of scour protection fill and the driving of sheet pile below the 2-year flood elevation would typically result in simplification of habitat and increased stream velocities under the structure. However, because the existing stream bank/multi-use trail embankment is devoid of functional riparian vegetation; is already completely simplified in terms of salmonid habitat; and the new scour protection fill will represent no net decrease in the floodway cross section, no long-term adverse affect is likely to occur to stream hydraulics as a result of the proposed action.

Riparian Vegetation. The removal of some, mostly non-native invasive species of riparian vegetation, such as Himalayan blackberries (*Rubus discolor*), will result in the short-term potential for exposed soils and increased sediment transport to Bear Creek. However, during construction, extensive erosion control measures and the proposed riparian plantings will result in long-term beneficial effects to the Bear Creek riparian corridor. Riparian plantings will provide erosion control, bank stabilization, shading, allochthonous inputs, and increase the potential for insect production.

Work Area Isolation and Fish Removal. Work at bents 16R, 17R, may require work area isolation from the flowing water of Bear Creek and fish rescue and salvage activities. Work at bents 39R, 39L, and 40L will require work area isolation from the flowing water of Bear Creek and fish rescue and salvage activities. Any listed fish removed from the isolated work area will experience high stress with the possibility of up to a 5% direct or delayed mortality rate depending on rescue method.

1.5.2 Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity,

space and safe passage. Effects on critical habitat from the proposed action are included in the effects description above.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area has been defined as the Bear Creek channel and adjacent riparian area from 500 feet upstream from the project site, downstream to the confluence with the Rogue River. Many actions occur within the Bear Creek watershed, within which the action area is found.

Non-federal activities within the action area are expected to increase with a projected 34 percent increase in human population over the next 25 years in Oregon (Oregon Department of Administrative Services 1999). Thus NMFS assumes that future private and State actions will continue within the action area, but at increasingly higher levels as population density increases. NMFS assumes that future FHWA transportation projects in the Bear Creek watershed will be reviewed through separate section 7 consultation processes and therefore are not considered cumulative effects.

1.6 Conclusion

NMFS has determined that, when the effects of the FHWA's proposed action (Medford Viaduct Project) are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of SONC coho salmon, or cause adverse modification or destruction of designated critical habitat. These conclusions were based on the following considerations: (1) All in-water work and other construction activities within the 2-year flood elevation will take place according to ODFW guidelines for timing of in-water work or during approved exceptions, to protect fish and wildlife resources; (2) to the greatest extent possible, all sediment laden water and water contaminated by contact with green concrete or other construction related contaminants will be contained and treated prior to contact with the flowing waters of Bear Creek; (3) temporary work platforms will be constructed at each bent to contain construction debris from entering Bear Creek; (4) work area isolation, if necessary, (including use of NMFS' guidelines for proper fish handling (NMFS 2000)) and other conservation measures will be in place to avoid or minimize adverse affects to water quality; (5) riparian vegetation cleared for access and installation of seismic and scour protection measures will be more than offset by the 420 square meters of native riparian plantings; and (6) riprap and sheetpile scour protection measures will not result in long-term adverse effects to Bear Creek hydraulics. Therefore, the proposed action is not expected to prevent or delay the achievement of properly functioning habitat conditions in the action area.

1.7 Reinitiation of Consultation

As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion, (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion, or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of authorized incidental take is exceeded, any operations causing such take must cease pending reinitiation of consultation.

2. INCIDENTAL TAKE STATEMENT

Section 4 (d) and Section 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering (50 CFR 222.102; October 1, 2000). Harass is defined as actions that create the likelihood of injuring listed species enough to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount or Extent of the Take

The NMFS anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of SONC coho salmon because of detrimental effects from increased sediment levels, potential for chemical contamination, and the potential for direct incidental take during in-water work. Based on the timing of in-water work during ODFW approved periods, the potential for take is low. Effects such as temporarily-elevated temperatures are largely unquantifiable in the short-term, and are not expected to be measurable as long-term harm to coho salmon behavior or population levels. The NMFS anticipates non-lethal incidental take of up to 200 individuals, of which, lethal take of up to 10 juvenile SONC coho could occur as a result of the fish rescue, salvage and relocation activities covered by this Opinion. The extent of

authorized take is limited to SONC coho salmon in Bear Creek and is limited to that caused by the proposed action within the action area.

2.2 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The FHWA has the continuing duty to regulate the activities covered in this incidental take statement. If the FHWA fails to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(a)(2) may lapse.

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. The FHWA shall:

1. Minimize the likelihood of incidental take from streambank and shoreline protection actions by directing the contractor to use an approach that maximizes ecological functions and the best available bioengineering technology.

2. Minimize the likelihood of incidental take from activities involving temporary access roads, use of heavy equipment, earthwork, site restoration, or that may otherwise involve in-water work or affect fish passage by directing the contractor to avoid or minimize disturbance to riparian and aquatic systems.

3. Minimize the likelihood of incidental take from in-water work activities by ensuring that the in-water work activities (excavation and scour protection placement) are isolated from flowing water.

4. Complete a comprehensive monitoring and reporting program to ensure that implementation of these conservation measures are effective in minimizing the likelihood of take from permitted activities.

2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity.

1. To Implement Reasonable and Prudent Measure #1 (streambank protection), the FHWA shall ensure that:
    a. The use of rock and riprap is minimized.
        i. Rock will be individually placed in a way that produces an irregularly contoured face to provide velocity disruption. No end dumping will be allowed.
    b. Any instream large wood or riparian vegetation that is moved or altered during construction will stay on site or be replaced with a functional equivalent.
    c. The bankline will be revegetated using natural vegetation.

2. To implement Reasonable and Prudent Measure #2 (construction), the FHWA shall ensure that:
    a. Project design. Alteration or disturbance of the stream banks and existing riparian vegetation will be minimized.
    b. In-water work. All work within the active channel will be completed within the following in-water work period (June 15 - September 15) for the site, except for in-water work associated with bents 16R and 17R which will be completed within the ODFW approved extension to the in-water work period October 1 - October 31. Any additional extensions of the in-water work period must be approved by NMFS.
    c. Pollution and erosion control plan. A Pollution and Erosion Control Plan (PECP) will be developed for the project to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations:
        i. Methods that will be used to prevent erosion and sedimentation associated with access roads, construction sites, equipment and material storage sites, fueling operations and staging areas.
        ii. A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.
        iii. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.
        iv. Measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.
    d. Pre-construction activities. Prior to significant alteration of the action area, the following actions will be accomplished:
        i. Boundaries of the clearing limits associated with site access and construction flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond flagged boundaries.

ii. A supply of erosion control materials (e.g., silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.

iii. All temporary erosion controls (e.g., straw bales, silt fences) are in place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.

e. Earthwork. Earthwork, including excavation, filling and compacting, is completed in the following manner:

i. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained from outside of the riparian area.

ii. Material removed during excavation will only be placed in locations where it cannot enter streams or other water bodies.

iii. All exposed or disturbed areas will be stabilized to prevent erosion.

(1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,[3] mulching, and placement of erosion control blankets and mats, if applicable, as quickly as reasonable after exposure, but within 7 days of exposure.

(2) All other areas will be stabilized as quickly as reasonable, but within 14 days of exposure.

(3) Seeding outside of the growing season will not be considered adequate for permanent stabilization.

f. Heavy Equipment. Heavy equipment will be fueled, maintained and stored as follows:

i. Vehicle staging, maintenance, refueling, and fuel storage areas will be a minimum of 150 feet horizontal distance from any stream.

ii. All vehicles operated within 150 feet of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.

iii. When not in use, vehicles will be stored in the vehicle staging area.

g. Site restoration. Site restoration and clean-up, including protection of bare earth by seeding, planting, mulching and fertilizing, will be done in the following manner:

i. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state where the project is located, and will comprise a diverse assemblage of woody and herbaceous species.

ii. No herbicide application will occur as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.

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[3] By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

iii. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.

iv. Plantings will achieve an 80 percent survival success after three years within the natural vegetation zone at the project site.

(1) If success standard has not been achieved after 3 years, the applicant will submit an alternative plan to NMFS. The alternative plan will address temporal loss of function.

(2) Plant establishment monitoring will continue and plans will be submitted to the NMFS until site restoration success has been achieved.

3. To implement Reasonable and Prudent Measure #3 (in-water work area activities), the FHWA shall ensure that the in-water work activities (excavation, scour protection placement, and concrete work) are isolated from flowing water.

4. To implement Reasonable and Prudent Measure #4 (monitoring and reporting), the FHWA shall ensure that:

a. Within 120 days of completing the project, the FHWA shall ensure submittal of a monitoring report to NMFS describing the FHWA's success meeting their permit conditions. This report will consist of the following information:

i. Project identification.

(1) Project name.

(2) Starting and ending dates of work completed for this project.

(3) The FHWA contact person.

ii. Isolation of in-water work area. All projects involving isolation of in-water work areas must include a report of any seine and release activity including:

(1) The name and address of the supervisory fish biologist.

(2) Methods used to isolate the work area and minimize disturbances to fish species.

(3) Stream conditions prior to and following placement and removal of barriers.

(4) The means of fish removal.

(5) The number of fish removed by species.

(6) The location and condition of all fish released.

(7) Any incidence of observed injury or mortality.

iii. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.

iv. Site restoration. Documentation of the following conditions:

(1) Finished grade slopes and elevations.

(2) Log and rock structure elevations, orientation, and anchoring, if any.

(3) Planting composition and density.
(4) A plan to inspect and, if necessary, replace failed plantings and structures for a period of five years, including the compensatory mitigation site.

v. A narrative assessment of the effects of the project and compensatory mitigation on natural stream function.

vi. Photographic documentation of environmental conditions at the project site before, during and after project completion.
(1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre- and post-construction.
(2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
(3) Relevant environmental conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

b. Submit monitoring reports to:

National Marine Fisheries Service
Oregon Habitat Branch, Habitat Conservation Division
Attn: OHB2002-0044
525 NE Oregon Street, Suite 500
Portland, Oregon 97232-2778

c. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the National Marine Fishery Service Law Enforcement Office, located at Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; cell: 360.418.4246. Care will be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

3. MAGNUSON - STEVENS ACT

3.1 Background

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: 'Waters' include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; 'substrate' includes sediment, hard bottom, structures underlying the waters, and associated biological communities; 'necessary' means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;.
- NMFS shall provide conservation recommendations for any Federal or State activity that may adversely affect EFH.
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), and Puget Sound pink salmon (*O. gorbuscha*)(PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed actions are detailed in Section 1.2 above (Proposed Action). The action area is defined as the channel and adjacent riparian area from about 500 feet upstream from the project site, downstream a mile from the project site. This area has been designated as EFH for various life stages of coho salmon and chinook salmon.

3.5 Effects of Proposed Action

As described in detail in Section 1.5 above (Analysis of Effects), the proposed activities may result in short-term adverse effects and beneficial long-term effects to a variety of habitat parameters. These impacts include: Increases in turbidity, disturbance of the beds and banks of the river, removal and revegetation of riparian vegetation and the potential for pollutants to enter the water.

3.6 Conclusion

NMFS believes that the proposed action may adversely affect the EFH for coho salmon and chinook salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the FHWA and all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Sections 2.2 and 2.3 are applicable to salmon EFH. Therefore, NMFS incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NMFS after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NMFS, the agency must explain its reasons for not following the recommendation.

3.9 Consultation Renewal

The FHWA must reinitiate EFH consultation with NMFS if either the action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

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